

Patent claims

1. A method for testing the authenticity of a data carrier (1) having an integrated circuit by an external device (2) with which the data carrier (1) exchanges data, comprising the steps of:
- providing a first transmission channel (A) for transmitting signals between the data carrier (1) and the external device (2),
 - providing a second transmission channel (B) logically separated from the first transmission channel (A), the separation of the first and second transmission channels being so designed that data transmission via one transmission channel does not interfere with data transmission via the other transmission channel and the second transmission channel (B) is activable during the total time period between activation and deactivation of the data carrier (1),
 - having the data carrier (1) generate a signal required for authenticity testing,
 - transmitting the signal for authenticity testing from the data carrier (1) to the external device (2) or a signal required for generating the signal for authenticity testing from the external device (2) to the data carrier (1) at least partly via the second transmission channel, and
 - having the external device (2) receive the signal for authenticity testing, and deciding on the basis of the received signal whether the data carrier (1) is authentic.
2. A method according to claim 1, characterized in that the second transmission channel (B) is provided by modulating the signal of the first transmission channel.
3. A method according to claim 2, characterized in that modulation does not impair an ISO compatibility of data exchange between the data carrier (1) and the external device (2) existing for the first transmission channel (A).

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- a*
- 2*
- a*
B
a
4. A method according to ~~either of claims 2 to 3~~ ^{claim 2}, characterized in that modulation is performed in areas of the signal pattern which are not evaluated according to the ISO standard.
5. A method according to ~~either of claims 2 to 3~~ ^{claim 2}, characterized in that the changes caused by modulation in the signal of the first transmission channel (A) are within the range of variation of the signal level permitted by the ISO standard.
6. A method according to ~~any of claims 2 to 5~~ ^{claim 2}, characterized in that modulation and demodulation of the signal are performed in the data carrier (1) and in the external device (2) with the aid of a mixing/demixing device (7, 8) in each case.
7. A method according to ~~any of claims 1 to 6~~ ^{claim 1}, characterized in that the first transmission channel (A) is a line for transmitting standard data or a line for transmitting the clock signal or a line for the supply voltage.
8. A method for testing the authenticity of a data carrier (1) having an integrated circuit (3) by an external device (2) with which the data carrier (1) exchanges data, comprising the steps of:
- providing a first transmission channel (A) for transmitting signals between the data carrier (1) and the external device (2),
 - providing a second transmission channel (B) physically separated from the first transmission channel (A) and comprising at least one line or contactless transmission path not provided according to the ISO standard, the second transmission channel (B) being activable during the total time period between activation and deactivation of the data carrier (1),
 - having the data carrier (1) generate a signal required for authenticity testing,
 - transmitting the signal for authenticity testing from the data carrier (1) to the external device (2) or a signal required for generating said signal from the external device (2) to the data carrier (1) at least partly via the second transmission channel (B), and

9. A method according to claim 8, characterized in that the contactless transmission path is realized by transmitting the data as electromagnetic, electrostatic, magnetic, acoustic or optical signals.
10. A method according to claim 9, characterized in that a mixture of wavelengths is used for transmission via the contactless transmission path.
11. A method according to ^{claim 1} ~~any of claims 1 to 10~~, characterized in that the decision on authenticity of the data carrier (1) is contingent on whether data exchange is possible between the devices (3, 4) to which the first and second transmission channels are coupled in the data carrier (1).
12. A data carrier (1) which can exchange data with an external device (2) and has an integrated circuit, wherein
- the data carrier (1) has a first device (3) for generating signals for data exchange between the data carrier (1) and the external device (2), and the first device (3) is adapted to be coupled to a first transmission channel (A),
 - the data carrier (1) has a second device (4) for generating signals required for authenticity testing of the data carrier (1), and the second device (4) is adapted to be coupled to a second transmission channel (B) and connected with the first device (3),
 - the first and second transmission channels are separated logically or physically, and
 - data exchange with the second device (4) does not interfere with data exchange with the first device (3), and the second device (4) is ready for generating signals for authenticity testing of the data carrier during the total time period between activation and deactivation of the data carrier (1).

13. A data carrier according to claim 12, characterized in that the first device (3) and the second device (4) are each coupled to the transmission channels (A, B) via a mixing/demixing module (7).
14. A system for testing the authenticity of a data carrier (1) and/or an external device (2) comprising:
- a data carrier (1) with a first device (3) for generating signals for data exchange with the external device (2) and a second device (4) for generating and/or processing signals for authenticity testing,
 - an external device (2) with a first device (5) for generating signals for data exchange with the data carrier (1) and a second device (6) for generating and/or processing signals for authenticity testing,
 - a first transmission channel (A) for transmitting signals between the first device (3) of the data carrier (1) and the first device (5) of the external device (2),
 - and a second transmission channel (B) for transmitting signals between the second device (4) of the data carrier (1) and the second device (6) of the external device (2), the first and second transmission channels (A, B) being separated logically or physically and the separation of the first and second transmission channels (A, B) being so designed that data transmission via one transmission channel does not interfere with data transmission via the other transmission channel, and the second transmission channel (B) being activable during the total time period between activation and deactivation of the data carrier (1).